



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
DESA/HWSB/HWSS
2890 Woodbridge Avenue, Edison, NJ 08837

EXECUTIVE NARRATIVE

Case No.: 48579

Site: Pierson's Creek

Number of Samples: 19 (Water)

Analysis: Metals (ICP-MS) and Hg

SDG No.: MBFR48

Laboratory: Bonner Analytical Testing Co.

Sampling dates: 12/9/19 – 12/11/19

Validation SOP: HW-3b (Rev.1), HW-3c (Rev. 1)

QAPP

Contractor: CDM Smith

Reference: DCN 3323-060-03778, February 2019

SUMMARY OF DEFINITIONS:

Critical: Results have an unacceptable level of uncertainty and should not be used for making decisions. Data have been qualified “R” rejected.

Major: A level of uncertainty exists that may not meet the data quality objectives for the project. A bias is likely to be present in the results. Data has been qualified “J” estimated. “J+” and “J-“ represent likely direction of the bias.

Minor: The level of uncertainty is acceptable. No significant bias in the data was observed.

Critical Findings:

None

Major Findings:

The following samples have analytes that have been qualified J, J+ or J-;

Metals (ICP-MS): MBFR73

Mercury: MBFR51, MBFR54

Minor Findings:

One or more analytes in one or more samples are qualified “J” due to results between MDL and CRQL.

COMMENT: **Metals (ICP-MS) and Mercury:** One or more detected and non-detected analytes exceeded the project action levels in one or more samples.

Reviewer Name(s): Israel Okwuonu

Approver's Signature:

Date: 02-14-2020

Name: Narendra Kumar

Affiliation: USEPA/R2/HWSB/HWSS



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Data Qualifier Definitions (National Functional Guidelines)			
Qualifier Symbol	Explanation		
	INORGANICS	ORGANICS	CHLORINATED DIOXIN/FURAN
U	The analyte was analyzed for, but was not detected above the level of the reported quantitation limit.	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method	The analyte was analyzed for but not detected. The value preceding the "U" may represent the adjusted Contract Required Quantitation Limit (see DLM02.X, Exhibit D, Section 1.2 and Table 2), or the sample specific estimated detection limit (EDL, see Method 8290A, Section 11.9.5).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to an issue with the quality of the data generated because certain QC criteria were not met, or the concentration of the analyte was below the adjusted CRQL).
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.	
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.	
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.	The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.	The analyte was not detected (see definition of "U" flag, above). The reported value should be considered approximate.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
N		The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".	
NJ		The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	
C		This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).	
X		This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.	



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DATA ASSESSMENT

ANALYSIS: METALS ICP-MS

The current SOP HW-3b (Rev 1) September 2016, USEPA Region II for the evaluation of ICP-MS metals generated through Statement of Work ISOM02.2, and any future editorial revisions of ISOM02.2 has been applied. Data have been reviewed according to TDF specifications, the National Functional Guidelines Report and the CCS Semi- Automated Screening Results Report.

1. HOLDING TIME AND PRESERVATION

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time or pH (aqueous samples are not within the acceptable range, the data may not be valid. Those analytes detected in the samples whose holding time (180 days) or pH (≤ 2) have not been met, will be qualified as estimated, "J"; the non-detects will be flagged as unusable, "R". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

2. CALIBRATION

Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data for the metals on the Inorganic Target Analyte List (TAL). Initial Calibration Verification (ICV) demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical run. Continuing Calibration Verification (CCV) demonstrates that the initial calibration is still valid by checking the performance of the instrument on a continuing basis.

A) INITIAL CALIBRATION

A blank and at least five calibration standards shall be used to establish each analytical curve. At least one of these standards shall be at or below the CRQL. The calibration curve shall be fitted using linear regression or weighted linear regression. The curve may be forced through zero. The curve must have a correlation coefficient ≥ 0.995 . The percent differences calculated for all of the non-zero standards must be within $\pm 30\%$ of the true value of the standard. The y-intercept of the curve must be less than the CRQL. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) INITIAL AND CONTINUING CALIBRATION VERIFICATION

Immediately after each system has been calibrated, the accuracy of the initial calibration must be verified and documented for each target analyte by the analysis of an ICV solution(s). The CCV standard shall be analyzed at a frequency of every two hours during an analytical run. The CCV standard shall also be analyzed at the beginning of the run, and again after the last analytical sample. The percent recovery acceptable limits for ICV/CCV are 90 – 110%. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.



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3. BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during sample preparation or field activity. Calibration blanks (ICB and CCB) are used to ensure a stable instrument baseline before and during the analysis of analytical samples. The preparation blank is used to assess the level of contamination introduced to the analytical samples throughout the sample preparation process. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

The following samples have analyte results less than the CRQLs. The associated ICB analyte results are less than the CRQLs. Detects are qualified as U. Sample results are reported at CRQLs.

Antimony MBFR50, MBFR51, MBFR55, MBFR67, MBFR70, MBFR73, MBFR74, MBFR77, MBFR80

FIELD BLANK MBFR86, MBFR87

The following samples have analyte results less than the CRQLs. The associated field blank analyte results are less than the CRQLs. Detects are qualified as U. Sample results are reported at CRQLs.

Vanadium MBFR50, MBFR51, MBFR53, MBFR54, MBFR55, MBFR59

Chromium MBFR49, MBFR50, MBFR53, MBFR95

4. INTERFERENCE CHECK SAMPLE

The Interference Check Sample (ICS) verifies the analytical instrument's ability to overcome interferences typical of those found in samples. The laboratory should have analyzed and reported ICS results for all elements being reported from the analytical run and for all interferents (target and non-target) for these reported elements. The ICS consists of two solutions: Solution A and Solution AB. Solution A consists of the interferents, and Solution AB consists of the analytes mixed with the interferents. Results for the analysis of ICS Solution must fall within the control limits of $\pm 20\%$ or $\pm 2X$ CRQL (whichever is greater) of the true value for the analytes and interferents included in the solution. If results that are \geq MDL are observed for analytes that are not present in the ICS solution, the possibility of false positives exists. If negative results are observed for analytes that are not present in the ICS solution, and their absolute value is \geq MDL, the possibility of false negatives in the samples exists. In general, ICP sample data can be accepted if the concentrations of Al, Ca, Fe, and Mg in the sample are found to be less than or equal to their respective concentrations in the ICS. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

5. SPIKE SAMPLE ANALYSIS

The spiked sample analysis is designed to provide information about the effect of each sample matrix on the sample preparation procedures and the measurement methodology. The spike Percent Recovery (%R) shall be within the established acceptance limits of 75 – 125%. However, spike recovery limits do not apply when the sample concentration is $\geq 4x$ the spike added. For a matrix spike analysis that does not meet the technical criteria, the action was applied to only the field sample used to prepare the matrix spike sample.

No problems were found for this criterion.



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6. DUPLICATE SAMPLE ANALYSIS

The objective of duplicate sample analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. A control limit of 20% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values \geq five times (5x) the Contract Required Quantitation Limit (CRQL). A control limit of the CRQL shall be used if either the sample or duplicate value is $< 5x$ the CRQL. For a duplicate sample analysis that does not meet the technical criteria, the action was applied to only the field sample used to prepare the duplicate sample.

No problems were found for this criterion.

7. FIELD DUPLICATE MBFR53/MBFR95

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 20% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values \geq five times (5x) the Contract Required Quantitation Limit (CRQL). A control limit of the CRQL shall be used if either the sample or duplicate value is $< 5x$ the CRQL. For field duplicates analysis that does not meet the technical criteria, the action was applied to only the field sample and it's duplicate.

No problems were found for this criterion.

8. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and Quality Assurance/Quality Control (QA/QC) procedures as employed for the samples. All LCS Percent Recoveries (%R) must fall within the control limits of 70-130%, except for Sb and Ag which must fall within the control limits of 50-150%. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

9. ICP SERIAL DILUTION

The serial dilution of samples quantitated by Inductively Coupled Plasma determines whether or not significant physical or chemical interferences exist due to sample matrix. If the analyte concentration is sufficiently high [concentration in the original sample is $>$ 50 times (50x) the Method Detection Limit (MDL)], the Percent Difference (%D) between the original determination and the serial dilution analysis (a five-fold dilution) after correction for dilution shall be less than 10. For a serial dilution analysis that does not meet the technical criteria, the action was applied to only the field sample used to prepare the serial dilution sample.

The following aqueous sample is associated with Serial Dilution (SD) sample that has analyte percent difference (%D) greater than 10% but less than 100%. The original sample analyte concentrations are greater than 50x MDLs. Detects are qualified as estimated J. Non-detects are not qualified.

Barium, Calcium, Magnesium, Manganese, Potassium, Sodium, Zinc MBFR73

10. ICP-MS TUNE ANALYSIS



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The Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) tune serves as an initial demonstration of instrument stability and precision. Prior to calibration, the laboratory shall analyze or scan the ICP-MS tuning solution at least five times (5x) consecutively. The tuning solution contains 100 µg/L of Be, Mg, Co, In, and Pb. The solution shall contain all required isotopes of the above elements. The laboratory shall make any adjustments necessary to bring peak width within the instrument manufacturer's specifications and adjust mass resolution to within 0.1 u over the range of 6-210 u. The Percent Relative Standard Deviation (%RSD) of the absolute signals for all analytes in the tuning solution must be < 5%. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

11. ICP-MS INTERNAL STANDARDS

The analysis of Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) internal standards determines the existence and magnitude of instrument drift and physical interferences. The criteria for evaluation of internal standard results apply to all analytical and Quality Control (QC) samples analyzed during the run, beginning with the calibration.

All samples analyzed during a run, with the exception of the ICP-MS tune, shall contain internal standards. A minimum of five internal standards shall be added to each sample. The laboratory shall monitor the same internal standards throughout the entire analytical run and shall assign each analyte to at least one internal standard. The Percent Relative Intensity (%RI) in the sample shall fall within 60-125% of the response in the calibration blank. If the %RI of the response in the sample falls outside of these limits, the laboratory shall reanalyze the original sample at a two-fold dilution with internal standard added. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

12. PERCENT SOLIDS

The laboratory is required to perform the percent solids determination prior to sample preparation and analysis. All results of a sample with percent solids less than 50% are qualified estimated, "J". Qualifications were applied to the samples and analytes as shown below.

Not applicable.

ANALYSIS: MERCURY (MA # 2755.2)

The current SOP HW-3c (Rev 1) September 2016, USEPA Region II for the evaluation of Mercury generated through Statement of Work ISOM02.2, and any future editorial revisions of ISOM02.2 has been applied. Data have been reviewed according to TDF specifications, the National Functional Guidelines Report and the CCS Semi- Automated Screening Results Report.

1. HOLDING TIME AND PRESERVATION

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time, pH (aqueous samples), or cooler temperature are not within the acceptable range, the data may not be valid. Those analytes detected in the samples whose holding time (28 days) and pH (<2) have not been met, will be qualified as estimated, "J"; the non-detects (sample quantitation limits) will be flagged as unusable, "R". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.



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2. CALIBRATION

Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data for mercury. Initial Calibration Verification (ICV) demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical run. Continuing Calibration Verification (CCV) demonstrates that the initial calibration is still valid by checking the performance of the instrument on a continuing basis.

A) INITIAL CALIBRATION

A blank and at least five calibration standards shall be employed to establish the analytical curve. At least one of the calibration standards shall be at or below the Contract Required Quantitation Limit (CRQL). The calibration curve shall be fitted using linear regression or weighted linear regression. The curve may be forced through zero. The calibration curves for mercury shall possess a correlation coefficient of ≥ 0.995 to ensure the linearity over the calibrated range. The percent differences calculated for all of the non-zero standards must fall within $\pm 30\%$ of the true value of the standard. The y-intercept of the curve must be less than the CRQL. All sample results shall be reported from an analysis within the calibrated range. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) INITIAL AND CONTINUING CALIBRATION VERIFICATION

Immediately after each system has been calibrated, the accuracy of the initial calibration must be verified and documented for mercury by the analysis of an ICV solution(s). The CCV standard shall be analyzed at a frequency of every hour during an analytical run. The CCV standard shall also be analyzed at the beginning of the run, and again after the last analytical sample. The percent recovery acceptable limits for ICV/CCV are 85 – 115%. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

3. BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

FIELD BLANK MBFR86, MBFR87

The following samples have analyte results less than the CRQLs. The associated rinse blank analyte results are less than the CRQLs. Detects are qualified as U. Sample results are reported at CRQLs.

Mercury MBFR48, MBFR49, MBFR95

The following samples have analyte results less than or equal to the CRQLs. The associated field blank analyte results are greater than the CRQL. Detects are qualified as U. Sample results are reported at CRQLs.



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Mercury MBFR50, MBFR55, MBFR58

The following samples have analyte results greater than the blank results but less than 10x the blank results. The associated field blank analyte results are greater than the CRQL. Detects are qualified as J.

Mercury MBFR51, MBFR54

4. SPIKE SAMPLE ANALYSIS

The spiked sample analysis is designed to provide information about the effect of each sample matrix on the sample preparation procedures and the measurement methodology. The spike Percent Recovery (%R) shall be within the established acceptance limits of 75 – 125%. However, spike recovery limits do not apply when the sample concentration is \geq 4x the spike added. For a matrix spike analysis that does not meet the technical criteria, the action was applied to only the field sample used to prepare the matrix spike sample.

No problems were found for this criterion.

5. DUPLICATE SAMPLE ANALYSIS

The objective of duplicate sample analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. A control limit of 20% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values \geq five times (5x) the Contract Required Quantitation Limit (CRQL). A control limit of the CRQL shall be used if either the sample or duplicate value is $<$ 5x the CRQL. For a duplicate sample analysis that does not meet the technical criteria, the action was applied to only the field sample used to prepare the duplicate sample.

No problems were found for this criterion.

6. FIELD DUPLICATE MBFR53/MBFR95

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 20% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values \geq five times (5x) the Contract Required Quantitation Limit (CRQL). A control limit of the CRQL shall be used if either the sample or duplicate value is $<$ 5x the CRQL. For field duplicates analysis that does not meet the technical criteria, the action was applied to only the field sample and it's duplicate.

No problems were found for this criterion.

7. PERCENT SOLIDS

The laboratory is required to perform the percent solids determination prior to sample preparation and analysis. Qualifications were applied to the samples and analytes as shown below.

Not applicable.

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: LCS01	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike	32.7		ug/L	32.7		1	YES	S3VEM
Antimony	Spike	3.9		ug/L	3.9		1	YES	S3VEM
Arsenic	Spike	2.3		ug/L	2.3		1	YES	S3VEM
Barium	Spike	19.8		ug/L	19.8		1	YES	S3VEM
Beryllium	Spike	1.8		ug/L	1.8		1	YES	S3VEM
Cadmium	Spike	1.8		ug/L	1.8		1	YES	S3VEM
Calcium	Spike	963		ug/L	963		1	YES	S3VEM
Chromium	Spike	4.2		ug/L	4.2		1	YES	S3VEM
Cobalt	Spike	2.0		ug/L	2.0		1	YES	S3VEM
Copper	Spike	4.0		ug/L	4.0		1	YES	S3VEM
Iron	Spike	428		ug/L	428		1	YES	S3VEM
Lead	Spike	1.9		ug/L	1.9		1	YES	S3VEM
Magnesium	Spike	907		ug/L	907		1	YES	S3VEM
Manganese	Spike	2.1		ug/L	2.1		1	YES	S3VEM
Nickel	Spike	2.3		ug/L	2.3		1	YES	S3VEM
Potassium	Spike	886		ug/L	886		1	YES	S3VEM
Selenium	Spike	11.2		ug/L	11.2		1	YES	S3VEM
Silver	Spike	1.9		ug/L	1.9		1	YES	S3VEM
Sodium	Spike	883		ug/L	883		1	YES	S3VEM
Thallium	Spike	1.9		ug/L	1.9		1	YES	S3VEM
Vanadium	Spike	11.2		ug/L	11.2		1	YES	S3VEM
Zinc	Spike	4.2		ug/L	4.2		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR48

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-13

pH: 1.

Sample Date: 12/09/2019

Sample Time: 10:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.032	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR48	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-13	pH: 1.	Sample Date: 12/09/2019	Sample Time: 10:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	3.3		ug/L	3.3		1	YES	S3VEM
Barium	Target	31.1		ug/L	31.1	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	0.52	J	ug/L	0.52	J	1	YES	S3VEM
Calcium	Target	355000		ug/L	355000	D*	5	YES	S3VEM
Chromium	Target	2.9		ug/L	2.9		1	YES	S3VEM
Cobalt	Target	1.1		ug/L	1.1		1	YES	S3VEM
Copper	Target	2.2		ug/L	2.2		1	YES	S3VEM
Iron	Target	8990		ug/L	8990		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	29900		ug/L	29900	*	1	YES	S3VEM
Manganese	Target	441		ug/L	441	*	1	YES	S3VEM
Nickel	Target	96.1		ug/L	96.1		1	YES	S3VEM
Potassium	Target	22800		ug/L	22800	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	75900		ug/L	75900	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Zinc	Target	72.9		ug/L	72.9	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR49

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-14

pH: 1.

Sample Date: 12/09/2019

Sample Time: 09:50:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.040	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR49	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-14	pH: 1.	Sample Date: 12/09/2019	Sample Time: 09:50:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	4.5		ug/L	4.5		1	YES	S3VEM
Barium	Target	28.5		ug/L	28.5	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	367000		ug/L	367000	D*	5	YES	S3VEM
Chromium	Target	2.0	U	ug/L	1.3	J	1	YES	S3VEM
Cobalt	Target	0.37	J	ug/L	0.37	J	1	YES	S3VEM
Copper	Target	1.2	J	ug/L	1.2	J	1	YES	S3VEM
Iron	Target	10800		ug/L	10800		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	28200		ug/L	28200	*	1	YES	S3VEM
Manganese	Target	403		ug/L	403	*	1	YES	S3VEM
Nickel	Target	7.7		ug/L	7.7		1	YES	S3VEM
Potassium	Target	21400		ug/L	21400	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	80600		ug/L	80600	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Zinc	Target	13.8		ug/L	13.8	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR50

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-15

pH: 1.

Sample Date: 12/11/2019

Sample Time: 13:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.050		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR50	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-15	pH: 1.	Sample Date: 12/11/2019	Sample Time: 13:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.4	J	1	YES	S3VEM
Arsenic	Target	31.7		ug/L	31.7		1	YES	S3VEM
Barium	Target	182		ug/L	182	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	176000		ug/L	176000	D*	5	YES	S3VEM
Chromium	Target	2.0	U	ug/L	1.6	J	1	YES	S3VEM
Cobalt	Target	2.6		ug/L	2.6		1	YES	S3VEM
Copper	Target	1.7	J	ug/L	1.7	J	1	YES	S3VEM
Iron	Target	2150		ug/L	2150		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	48100		ug/L	48100	*	1	YES	S3VEM
Manganese	Target	799		ug/L	799	*	1	YES	S3VEM
Nickel	Target	29.8		ug/L	29.8		1	YES	S3VEM
Potassium	Target	7530		ug/L	7530	*	1	YES	S3VEM
Selenium	Target	0.60	J	ug/L	0.60	J	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	54300		ug/L	54300	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	1.3	J	1	YES	S3VEM
Zinc	Target	88.0		ug/L	88.0	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR51

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-16

pH: 1.

Sample Date: 12/11/2019

Sample Time: 13:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.072	J	ug/L	0.072		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR51	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-16	pH: 1.	Sample Date: 12/11/2019	Sample Time: 13:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	0.95	J	1	YES	S3VEM
Arsenic	Target	5.6		ug/L	5.6		1	YES	S3VEM
Barium	Target	224		ug/L	224	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	349000		ug/L	349000	D*	3	YES	S3VEM
Chromium	Target	2.1		ug/L	2.1		1	YES	S3VEM
Cobalt	Target	5.0		ug/L	5.0		1	YES	S3VEM
Copper	Target	4.0		ug/L	4.0		1	YES	S3VEM
Iron	Target	4680		ug/L	4680		1	YES	S3VEM
Lead	Target	1.8		ug/L	1.8		1	YES	S3VEM
Magnesium	Target	56400		ug/L	56400	*	1	YES	S3VEM
Manganese	Target	649		ug/L	649	*	1	YES	S3VEM
Nickel	Target	29.9		ug/L	29.9		1	YES	S3VEM
Potassium	Target	6680		ug/L	6680	*	1	YES	S3VEM
Selenium	Target	1.2	J	ug/L	1.2	J	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	74500		ug/L	74500	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	1.2	J	1	YES	S3VEM
Zinc	Target	144		ug/L	144	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR52

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-17

pH: 1.

Sample Date: 12/09/2019

Sample Time: 12:15:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.068		ug/L	0.068		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR52	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-17	pH: 1.	Sample Date: 12/09/2019	Sample Time: 12:15:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.7		ug/L	2.7		1	YES	S3VEM
Arsenic	Target	8.2		ug/L	8.2		1	YES	S3VEM
Barium	Target	33.1		ug/L	33.1	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	8.0		ug/L	8.0		1	YES	S3VEM
Calcium	Target	873000		ug/L	873000	D*	10	YES	S3VEM
Chromium	Target	2.1		ug/L	2.1		1	YES	S3VEM
Cobalt	Target	5.8		ug/L	5.8		1	YES	S3VEM
Copper	Target	7.3		ug/L	7.3		1	YES	S3VEM
Iron	Target	15000		ug/L	15000		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	15300		ug/L	15300	*	1	YES	S3VEM
Manganese	Target	971		ug/L	971	*	1	YES	S3VEM
Nickel	Target	93.9		ug/L	93.9		1	YES	S3VEM
Potassium	Target	14600		ug/L	14600	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	32000		ug/L	32000	*	1	YES	S3VEM
Thallium	Target	0.077	J	ug/L	0.077	J	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Zinc	Target	209		ug/L	209	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR53

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-18

pH: 1.

Sample Date: 12/09/2019

Sample Time: 12:15:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.059		ug/L	0.059		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR53	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-18	pH: 1.	Sample Date: 12/09/2019	Sample Time: 12:15:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.8		ug/L	2.8		1	YES	S3VEM
Arsenic	Target	30.3		ug/L	30.3		1	YES	S3VEM
Barium	Target	20.4		ug/L	20.4	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	2.6		ug/L	2.6		1	YES	S3VEM
Calcium	Target	815000		ug/L	815000	D*	10	YES	S3VEM
Chromium	Target	2.0	U	ug/L	1.3	J	1	YES	S3VEM
Cobalt	Target	3.5		ug/L	3.5		1	YES	S3VEM
Copper	Target	2.8		ug/L	2.8		1	YES	S3VEM
Iron	Target	17200		ug/L	17200		1	YES	S3VEM
Lead	Target	1.1		ug/L	1.1		1	YES	S3VEM
Magnesium	Target	12800		ug/L	12800	*	1	YES	S3VEM
Manganese	Target	791		ug/L	791	*	1	YES	S3VEM
Nickel	Target	80.4		ug/L	80.4		1	YES	S3VEM
Potassium	Target	12200		ug/L	12200	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	30800		ug/L	30800	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	0.55	J	1	YES	S3VEM
Zinc	Target	148		ug/L	148	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR54

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-19

pH: 1.

Sample Date: 12/11/2019

Sample Time: 11:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.12	J	ug/L	0.12		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR54	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-19	pH: 1.	Sample Date: 12/11/2019	Sample Time: 11:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.2		ug/L	2.2		1	YES	S3VEM
Arsenic	Target	3.4		ug/L	3.4		1	YES	S3VEM
Barium	Target	179		ug/L	179	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	3.1		ug/L	3.1		1	YES	S3VEM
Calcium	Target	123000		ug/L	123000	D*	6	YES	S3VEM
Chromium	Target	2.8		ug/L	2.8		1	YES	S3VEM
Cobalt	Target	2.4		ug/L	2.4		1	YES	S3VEM
Copper	Target	4.2		ug/L	4.2		1	YES	S3VEM
Iron	Target	1360		ug/L	1360		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	76400		ug/L	76400	*	1	YES	S3VEM
Manganese	Target	4480		ug/L	4480	*	1	YES	S3VEM
Nickel	Target	18.9		ug/L	18.9		1	YES	S3VEM
Potassium	Target	15100		ug/L	15100	*	1	YES	S3VEM
Selenium	Target	3.8	J	ug/L	3.8	J	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	284000		ug/L	284000	D*	6	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	0.86	J	1	YES	S3VEM
Zinc	Target	110		ug/L	110	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR55

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-20

pH: 1.

Sample Date: 12/11/2019

Sample Time: 09:55:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.044	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR55	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-20	pH: 1.	Sample Date: 12/11/2019	Sample Time: 09:55:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	46.8		ug/L	46.8		1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	0.49	J	1	YES	S3VEM
Arsenic	Target	60.7		ug/L	60.7		1	YES	S3VEM
Barium	Target	1100		ug/L	1100	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	345000		ug/L	345000	D*	6	YES	S3VEM
Chromium	Target	4.3		ug/L	4.3		1	YES	S3VEM
Cobalt	Target	2.2		ug/L	2.2		1	YES	S3VEM
Copper	Target	0.86	J	ug/L	0.86	J	1	YES	S3VEM
Iron	Target	41700		ug/L	41700		1	YES	S3VEM
Lead	Target	1.1		ug/L	1.1		1	YES	S3VEM
Magnesium	Target	15800		ug/L	15800	*	1	YES	S3VEM
Manganese	Target	707		ug/L	707	*	1	YES	S3VEM
Nickel	Target	11.8		ug/L	11.8		1	YES	S3VEM
Potassium	Target	8920		ug/L	8920	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	29300		ug/L	29300	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	1.3	J	1	YES	S3VEM
Zinc	Target	13.3		ug/L	13.3	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR58

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-23

pH: 1.

Sample Date: 12/11/2019

Sample Time: 10:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.023	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR58	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-23	pH: 1.	Sample Date: 12/11/2019	Sample Time: 10:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	17.1		ug/L	17.1		1	YES	S3VEM
Barium	Target	691		ug/L	691	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	120000		ug/L	120000	*	1	YES	S3VEM
Chromium	Target	4.6		ug/L	4.6		1	YES	S3VEM
Cobalt	Target	1.2		ug/L	1.2		1	YES	S3VEM
Copper	Target	1.1	J	ug/L	1.1	J	1	YES	S3VEM
Iron	Target	34500		ug/L	34500		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	222000		ug/L	222000	D*	60	YES	S3VEM
Manganese	Target	796		ug/L	796	*	1	YES	S3VEM
Nickel	Target	5.0		ug/L	5.0		1	YES	S3VEM
Potassium	Target	73600		ug/L	73600	*	1	YES	S3VEM
Selenium	Target	0.36	J	ug/L	0.36	J	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	1900000		ug/L	1900000	D*	60	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.8		ug/L	5.8		1	YES	S3VEM
Zinc	Target	5.8		ug/L	5.8	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR59

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: MW-103

pH: 1.

Sample Date: 12/09/2019

Sample Time: 14:15:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.036	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR59	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: MW-103	pH: 1.	Sample Date: 12/09/2019	Sample Time: 14:15:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	3.7		ug/L	3.7		1	YES	S3VEM
Barium	Target	1480		ug/L	1480	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	156000		ug/L	156000	D*	5	YES	S3VEM
Chromium	Target	4.9		ug/L	4.9		1	YES	S3VEM
Cobalt	Target	0.47	J	ug/L	0.47	J	1	YES	S3VEM
Copper	Target	0.99	J	ug/L	0.99	J	1	YES	S3VEM
Iron	Target	5160		ug/L	5160		1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	19400		ug/L	19400	*	1	YES	S3VEM
Manganese	Target	344		ug/L	344	*	1	YES	S3VEM
Nickel	Target	20.7		ug/L	20.7		1	YES	S3VEM
Potassium	Target	15600		ug/L	15600	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	183000		ug/L	183000	D*	5	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	1.1	J	1	YES	S3VEM
Zinc	Target	1.2	J	ug/L	1.2	J*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR67

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T1

pH: 1.

Sample Date: 12/10/2019

Sample Time: 10:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.27		ug/L	0.27		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR67	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T1	pH: 1.	Sample Date: 12/10/2019	Sample Time: 10:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.2	J	1	YES	S3VEM
Arsenic	Target	117		ug/L	117		1	YES	S3VEM
Barium	Target	47.5		ug/L	47.5	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	45600		ug/L	45600	*	1	YES	S3VEM
Chromium	Target	1.0	J	ug/L	1.0	J	1	YES	S3VEM
Cobalt	Target	6.2		ug/L	6.2		1	YES	S3VEM
Copper	Target	3.8		ug/L	3.8		1	YES	S3VEM
Iron	Target	3620		ug/L	3620		1	YES	S3VEM
Lead	Target	2.6		ug/L	2.6		1	YES	S3VEM
Magnesium	Target	7220		ug/L	7220	*	1	YES	S3VEM
Manganese	Target	120		ug/L	120	*	1	YES	S3VEM
Nickel	Target	4.6		ug/L	4.6		1	YES	S3VEM
Potassium	Target	9230		ug/L	9230	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	70200		ug/L	70200	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	1.1	J	ug/L	1.1	J	1	YES	S3VEM
Zinc	Target	51.9		ug/L	51.9	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR70

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T4

pH: 1.

Sample Date: 12/10/2019

Sample Time: 10:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.16		ug/L	0.16		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR70	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T4	pH: 1.	Sample Date: 12/10/2019	Sample Time: 10:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.1	J	1	YES	S3VEM
Arsenic	Target	69.1		ug/L	69.1		1	YES	S3VEM
Barium	Target	41.6		ug/L	41.6	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	34900		ug/L	34900	*	1	YES	S3VEM
Chromium	Target	1.1	J	ug/L	1.1	J	1	YES	S3VEM
Cobalt	Target	4.0		ug/L	4.0		1	YES	S3VEM
Copper	Target	3.1		ug/L	3.1		1	YES	S3VEM
Iron	Target	1940		ug/L	1940		1	YES	S3VEM
Lead	Target	2.0		ug/L	2.0		1	YES	S3VEM
Magnesium	Target	5550		ug/L	5550	*	1	YES	S3VEM
Manganese	Target	93.9		ug/L	93.9	*	1	YES	S3VEM
Nickel	Target	3.4		ug/L	3.4		1	YES	S3VEM
Potassium	Target	6660		ug/L	6660	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	60500		ug/L	60500	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	1.2	J	ug/L	1.2	J	1	YES	S3VEM
Zinc	Target	44.5		ug/L	44.5	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T9

pH: 1.

Sample Date: 12/10/2019

Sample Time: 11:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.088		ug/L	0.088		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T9	pH: 1.	Sample Date: 12/10/2019	Sample Time: 11:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	0.99	J	1	YES	S3VEM
Arsenic	Target	44.2		ug/L	44.2		1	YES	S3VEM
Barium	Target	45.8	J	ug/L	45.8	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	32100	J	ug/L	32100	*	1	YES	S3VEM
Chromium	Target	1.1	J	ug/L	1.1	J	1	YES	S3VEM
Cobalt	Target	2.9		ug/L	2.9		1	YES	S3VEM
Copper	Target	2.7		ug/L	2.7		1	YES	S3VEM
Iron	Target	1100		ug/L	1100		1	YES	S3VEM
Lead	Target	1.4		ug/L	1.4		1	YES	S3VEM
Magnesium	Target	5000	J	ug/L	5000	*	1	YES	S3VEM
Manganese	Target	87.1	J	ug/L	87.1	*	1	YES	S3VEM
Nickel	Target	2.9		ug/L	2.9		1	YES	S3VEM
Potassium	Target	5410	J	ug/L	5410	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	73900	J	ug/L	73900	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	1.2	J	ug/L	1.2	J	1	YES	S3VEM
Zinc	Target	43.4	J	ug/L	43.4	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73D

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location:

pH: 1.

Sample Date: 12/10/2019

Sample Time: 11:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.12		ug/L	0.12		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73D	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 12/10/2019	Sample Time: 11:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	1.0	J	ug/L	1.0	J	1	YES	S3VEM
Arsenic	Target	44.7		ug/L	44.7		1	YES	S3VEM
Barium	Target	46.1		ug/L	46.1		1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	32600		ug/L	32600		1	YES	S3VEM
Chromium	Target	1.0	J	ug/L	1.0	J	1	YES	S3VEM
Cobalt	Target	2.9		ug/L	2.9		1	YES	S3VEM
Copper	Target	2.9		ug/L	2.9		1	YES	S3VEM
Iron	Target	1110		ug/L	1110		1	YES	S3VEM
Lead	Target	1.5		ug/L	1.5		1	YES	S3VEM
Magnesium	Target	5050		ug/L	5050		1	YES	S3VEM
Manganese	Target	88.8		ug/L	88.8		1	YES	S3VEM
Nickel	Target	3.3		ug/L	3.3		1	YES	S3VEM
Potassium	Target	5300		ug/L	5300		1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	74800		ug/L	74800		1	YES	S3VEM
Thallium	Target	0.11	J	ug/L	0.11	J	1	YES	S3VEM
Vanadium	Target	1.7	J	ug/L	1.7	J	1	YES	S3VEM
Zinc	Target	42.7		ug/L	42.7		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73L	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	100	U	ug/L	100	U	5	YES	S3VEM
Antimony	Target	10.0	U	ug/L	10.0	U	5	YES	S3VEM
Arsenic	Target	41.7		ug/L	41.7		5	YES	S3VEM
Barium	Target	38.1	J	ug/L	38.1	J*	5	YES	S3VEM
Beryllium	Target	5.0	U	ug/L	5.0	U	5	YES	S3VEM
Cadmium	Target	5.0	U	ug/L	5.0	U	5	YES	S3VEM
Calcium	Target	26500		ug/L	26500	*	5	YES	S3VEM
Chromium	Target	1.5	J	ug/L	1.5	J	5	YES	S3VEM
Cobalt	Target	2.1	J	ug/L	2.1	J	5	YES	S3VEM
Copper	Target	2.6	J	ug/L	2.6	J	5	YES	S3VEM
Iron	Target	1000		ug/L	1000		5	YES	S3VEM
Lead	Target	5.0	U	ug/L	5.0	U	5	YES	S3VEM
Magnesium	Target	4330		ug/L	4330	*	5	YES	S3VEM
Manganese	Target	75.9		ug/L	75.9	*	5	YES	S3VEM
Nickel	Target	2.8	J	ug/L	2.8	J	5	YES	S3VEM
Potassium	Target	4200		ug/L	4200	*	5	YES	S3VEM
Selenium	Target	25.0	U	ug/L	25.0	U	5	YES	S3VEM
Silver	Target	5.0	U	ug/L	5.0	U	5	YES	S3VEM
Sodium	Target	63700		ug/L	63700	*	5	YES	S3VEM
Thallium	Target	5.0	U	ug/L	5.0	U	5	YES	S3VEM
Vanadium	Target	25.0	U	ug/L	25.0	U	5	YES	S3VEM
Zinc	Target	35.2		ug/L	35.2	*	5	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73S

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location:

pH: 1.

Sample Date: 12/10/2019

Sample Time: 11:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Spike	1.1		ug/L	1.1		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR73S	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 1.	Sample Date: 12/10/2019	Sample Time: 11:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	104		ug/L	104		1	YES	S3VEM
Arsenic	Spike	85.3		ug/L	85.3		1	YES	S3VEM
Barium	Spike	2070		ug/L	2070		1	YES	S3VEM
Beryllium	Spike	48.1		ug/L	48.1		1	YES	S3VEM
Cadmium	Spike	49.1		ug/L	49.1		1	YES	S3VEM
Chromium	Spike	198		ug/L	198		1	YES	S3VEM
Cobalt	Spike	475		ug/L	475		1	YES	S3VEM
Copper	Spike	239		ug/L	239		1	YES	S3VEM
Lead	Spike	20.7		ug/L	20.7		1	YES	S3VEM
Manganese	Spike	576		ug/L	576		1	YES	S3VEM
Nickel	Spike	475		ug/L	475		1	YES	S3VEM
Selenium	Spike	104		ug/L	104		1	YES	S3VEM
Silver	Spike	47.9		ug/L	47.9		1	YES	S3VEM
Thallium	Spike	47.0		ug/L	47.0		1	YES	S3VEM
Vanadium	Spike	543		ug/L	543		1	YES	S3VEM
Zinc	Spike	498		ug/L	498		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR74

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T12

pH: 1.

Sample Date: 12/10/2019

Sample Time: 12:30:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.36		ug/L	0.36		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR74	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T12	pH: 1.	Sample Date: 12/10/2019	Sample Time: 12:30:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	333		ug/L	333		1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.2	J	1	YES	S3VEM
Arsenic	Target	45.5		ug/L	45.5		1	YES	S3VEM
Barium	Target	53.6		ug/L	53.6	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	0.16	J	ug/L	0.16	J	1	YES	S3VEM
Calcium	Target	36900		ug/L	36900	*	1	YES	S3VEM
Chromium	Target	2.6		ug/L	2.6		1	YES	S3VEM
Cobalt	Target	3.1		ug/L	3.1		1	YES	S3VEM
Copper	Target	10.0		ug/L	10.0		1	YES	S3VEM
Iron	Target	2170		ug/L	2170		1	YES	S3VEM
Lead	Target	8.5		ug/L	8.5		1	YES	S3VEM
Magnesium	Target	5520		ug/L	5520	*	1	YES	S3VEM
Manganese	Target	112		ug/L	112	*	1	YES	S3VEM
Nickel	Target	4.7		ug/L	4.7		1	YES	S3VEM
Potassium	Target	5490		ug/L	5490	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	0.066	J	ug/L	0.066	J	1	YES	S3VEM
Sodium	Target	75100		ug/L	75100	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	2.6	J	ug/L	2.6	J	1	YES	S3VEM
Zinc	Target	66.4		ug/L	66.4	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR77

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T16

pH: 1.

Sample Date: 12/10/2019

Sample Time: 12:45:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.24		ug/L	0.24		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR77	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T16	pH: 1.	Sample Date: 12/10/2019	Sample Time: 12:45:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	296		ug/L	296		1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.2	J	1	YES	S3VEM
Arsenic	Target	31.0		ug/L	31.0		1	YES	S3VEM
Barium	Target	105		ug/L	105	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	0.12	J	ug/L	0.12	J	1	YES	S3VEM
Calcium	Target	47700		ug/L	47700	*	1	YES	S3VEM
Chromium	Target	2.2		ug/L	2.2		1	YES	S3VEM
Cobalt	Target	2.5		ug/L	2.5		1	YES	S3VEM
Copper	Target	8.4		ug/L	8.4		1	YES	S3VEM
Iron	Target	1980		ug/L	1980		1	YES	S3VEM
Lead	Target	5.8		ug/L	5.8		1	YES	S3VEM
Magnesium	Target	8830		ug/L	8830	*	1	YES	S3VEM
Manganese	Target	145		ug/L	145	*	1	YES	S3VEM
Nickel	Target	6.3		ug/L	6.3		1	YES	S3VEM
Potassium	Target	7480		ug/L	7480	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	106000		ug/L	106000	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	2.2	J	ug/L	2.2	J	1	YES	S3VEM
Zinc	Target	58.0		ug/L	58.0	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR80

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: T23

pH: 1.

Sample Date: 12/10/2019

Sample Time: 11:30:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.24		ug/L	0.24		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR80	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: T23	pH: 1.	Sample Date: 12/10/2019	Sample Time: 11:30:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	161		ug/L	161		1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	1.2	J	1	YES	S3VEM
Arsenic	Target	17.9		ug/L	17.9		1	YES	S3VEM
Barium	Target	97.8		ug/L	97.8	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	0.11	J	ug/L	0.11	J	1	YES	S3VEM
Calcium	Target	43100		ug/L	43100	*	1	YES	S3VEM
Chromium	Target	2.0		ug/L	2.0		1	YES	S3VEM
Cobalt	Target	1.7		ug/L	1.7		1	YES	S3VEM
Copper	Target	6.4		ug/L	6.4		1	YES	S3VEM
Iron	Target	1510		ug/L	1510		1	YES	S3VEM
Lead	Target	3.9		ug/L	3.9		1	YES	S3VEM
Magnesium	Target	9170		ug/L	9170	*	1	YES	S3VEM
Manganese	Target	144		ug/L	144	*	1	YES	S3VEM
Nickel	Target	4.6		ug/L	4.6		1	YES	S3VEM
Potassium	Target	8050		ug/L	8050	*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	154000		ug/L	154000	D*	10	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	1.6	J	ug/L	1.6	J	1	YES	S3VEM
Zinc	Target	40.9		ug/L	40.9	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR86

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: Rinsate Blank

pH: 1.

Sample Date: 12/09/2019

Sample Time: 15:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.046	J	ug/L	0.046	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR86	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Rinsate Blank	pH: 1.	Sample Date: 12/09/2019	Sample Time: 15:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	0.14	J	ug/L	0.14	J	1	YES	S3VEM
Barium	Target	10.0	U	ug/L	10.0	U*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	23.0	J	ug/L	23.0	J*	1	YES	S3VEM
Chromium	Target	0.47	J	ug/L	0.47	J	1	YES	S3VEM
Cobalt	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Copper	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Iron	Target	200	U	ug/L	200	U	1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	500	U	ug/L	500	U*	1	YES	S3VEM
Manganese	Target	1.0	U	ug/L	1.0	U*	1	YES	S3VEM
Nickel	Target	0.28	J	ug/L	0.28	J	1	YES	S3VEM
Potassium	Target	500	U	ug/L	500	U*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	36.9	J	ug/L	36.9	J*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	0.59	J	ug/L	0.59	J	1	YES	S3VEM
Zinc	Target	0.37	J	ug/L	0.37	J*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR87

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: Rinsate Blank

pH: 1.

Sample Date: 12/11/2019

Sample Time: 15:00:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.053		ug/L	0.053		1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR87	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Rinsate Blank	pH: 1.	Sample Date: 12/11/2019	Sample Time: 15:00:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Barium	Target	10.0	U	ug/L	10.0	U*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	12.5	J	ug/L	12.5	J*	1	YES	S3VEM
Chromium	Target	0.43	J	ug/L	0.43	J	1	YES	S3VEM
Cobalt	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Copper	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Iron	Target	200	U	ug/L	200	U	1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	500	U	ug/L	500	U*	1	YES	S3VEM
Manganese	Target	1.0	U	ug/L	1.0	U*	1	YES	S3VEM
Nickel	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Potassium	Target	500	U	ug/L	500	U*	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	500	U	ug/L	500	U*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	0.63	J	ug/L	0.63	J	1	YES	S3VEM
Zinc	Target	2.0	U	ug/L	2.0	U*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR95

Method: Mercury by Cold Vapor

Matrix: Water

MA Number: 2755.2

Sample Location: TMW-18

pH: 1.

Sample Date: 12/09/2019

Sample Time: 12:15:00

% Moisture:

% Solids:

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.046	J	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: MBFR95	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: TMW-18	pH: 1.	Sample Date: 12/09/2019	Sample Time: 12:15:00
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.8		ug/L	2.8		1	YES	S3VEM
Arsenic	Target	32.7		ug/L	32.7		1	YES	S3VEM
Barium	Target	21.5		ug/L	21.5	*	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	2.7		ug/L	2.7		1	YES	S3VEM
Calcium	Target	764000		ug/L	764000	D*	10	YES	S3VEM
Chromium	Target	2.0	U	ug/L	1.9	J	1	YES	S3VEM
Cobalt	Target	3.7		ug/L	3.7		1	YES	S3VEM
Copper	Target	3.4		ug/L	3.4		1	YES	S3VEM
Iron	Target	18100		ug/L	18100		1	YES	S3VEM
Lead	Target	1.2		ug/L	1.2		1	YES	S3VEM
Magnesium	Target	13600		ug/L	13600	*	1	YES	S3VEM
Manganese	Target	812		ug/L	812	*	1	YES	S3VEM
Nickel	Target	91.2		ug/L	91.2		1	YES	S3VEM
Potassium	Target	13400		ug/L	13400	*	1	YES	S3VEM
Selenium	Target	0.52	J	ug/L	0.52	J	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	32500		ug/L	32500	*	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Zinc	Target	160		ug/L	160	*	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: PBW01	Method: Mercury by Cold Vapor	Matrix: Water	MA Number: 2755.2
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Mercury	Target	0.050	U	ug/L	0.050	U	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.

Sample Number: PBW01	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids:	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	ug/L	20.0	U	1	YES	S3VEM
Antimony	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Arsenic	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Barium	Target	-0.20	J	ug/L	-0.20	J	1	YES	S3VEM
Beryllium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Cadmium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Calcium	Target	500	U	ug/L	500	U	1	YES	S3VEM
Chromium	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Cobalt	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Copper	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM
Iron	Target	200	U	ug/L	200	U	1	YES	S3VEM
Lead	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Magnesium	Target	-5.3	J	ug/L	-5.3	J	1	YES	S3VEM
Manganese	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Nickel	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Potassium	Target	-14	J	ug/L	-14	J	1	YES	S3VEM
Selenium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Silver	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Sodium	Target	-78	J	ug/L	-78	J	1	YES	S3VEM
Thallium	Target	1.0	U	ug/L	1.0	U	1	YES	S3VEM
Vanadium	Target	5.0	U	ug/L	5.0	U	1	YES	S3VEM
Zinc	Target	2.0	U	ug/L	2.0	U	1	YES	S3VEM

Sample Summary Report

Project Name: PIERSON'S CREEK Project

GroupID: 48579/EPW14029/MBFR48

Lab Name: Bonner Analytical Testing Co.